

## SEVERE LOCAL STORMS FOR AUGUST 1948

[The table hereunder contains such data as have been received concerning severe local storms that occurred during the month. A revised list will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Butte, Mont.	1	2-3:30 p. m.			\$250,000	Hail, wind, and rain.	Some hail damage to dwellings, automobiles, and gardens. A little wind damage to trees. Considerable damage to automobiles, basements, roads, streets, and bridges by heavy water run-off.
Cuero Airport, De Witt County, Tex.	1	4 p. m.		0	25,000	Tornado	Damaged 3 hangars; scattered 25 airplanes; 10 planes completely demolished.
Douglas, Wyo.	1	5 p. m.	1 2-4		401,100	Wind and hail	\$400,000 damage to growing crops; \$1,100 damage to livestock and property.
Missoula, Mont.	1	5-6 p. m.				Hail and rain	Hail caused little damage. Heavy water run-off caused considerable damage to basements, roads, and streets.
Cody, Wyo.	1					Rain	2 small bridges washed out by floodwaters.
Hebron, Thayer County, Nebr.	2	4:30 a. m.	1 1 1/4		15,000	Hail	Hailstones size of golf balls. Principal damage to corn, sorghums, and gardens. Path 10 miles long.
Morland to Penokee, Graham County, Kans.	2	3:45-4:45 p. m.	1 6		50,000	Hail and wind	Chief damage from hail. In Morland, 25 percent of windows broken. Hailstones accumulated to depth of 6 inches in places along highway, resulting in heavy fog in which 2 collisions occurred. Feed crops destroyed. Path of storm 8 miles long.
Cass County, Mo.	2	4:30 p. m.	1 1		1,500	do.	Storm from northeast occurred at Pleasant Hill over area of 1 square mile. Automobile tops, trees, and flowers damaged; some corn blown down. Hailstones 5/16 to 3/8 inch in diameter. Crop damage estimated at \$1,000, included in total.
Russell County, Kans.	2	4:30-7:30 p. m.	1 10	1	1,000	Wind, hail, and electrical.	Occurred over strip 30 miles long through Russell. Some damage to crops. 1 man killed by lightning.
Shawnee and Wabamsee Counties, Kans.	2	11 p. m.	1 5		200,000	Hail, wind, and rain.	Storm centered near Dover. Reports indicate downpour of 8 to 13 inches of rain. Hail destroyed many acres of corn. Several barns and outbuildings demolished. Severe flooding by Mission Creek and small streams. Damage to highways and bridges, \$50,000; to buildings, \$50,000; to crops by hail, \$100,000.
Glen Lyn (near), Va.	3	6 p. m.		2	10,000	Rain	2 persons drowned when sawmill and dwelling washed away.
Inner Canyon and North Rim of Grand Canyon, Ariz.	4	Early afternoon.			2,000	Thunderstorm and flash flood	0.80 inch of rain in 55 minutes damaged powerhouse and government installations on North Rim of Grand Canyon and in canyon bottom. Large sections of flume washed away, and creek bottom in several places dammed by rock and mud slides. Power and water supplies disrupted for 2 days.
Umatilla County (near Pendleton and Adams), Oreg.	4	6-9 p. m.			250,000	Hail and electrical	Storm centered near Adams, with hailstones as large as apricots reported. 8,000 acres of wheat largely spoiled; ranchhouse windows broken. Some grass fires started by lightning.
Ismay, Mont.	4		1 5			Hail	Severe damage to small grains and windowpanes over 30 mile path.
Wickenburg, Ariz.	5	6-7 p. m.			100,000	Rain and wind	2.25 inches of rain in 1 hour caused rapid run-off from side washes that run into Hassayampa River. 3 auto courts extensively damaged by water and high winds. Sidewalks washed out; several automobiles covered with silt and boulders. Many trees blown down, damaging roofs and interrupting power and communication lines. Extensive washing of orchards and gardens.
Norris, Mont.	6	12:30 p. m.	1 1			Hail	Moderate hail, up to size of walnuts, caused considerable damage to wheat.
Seobey (near), Mont.	6	4-4:20 p. m.	1 4		200,000	do.	Severe damage to small grains over path 6 miles long.
Culbertson (near), Mont.	6	5-5:10 p. m.	1 3		500,000	Hail and wind	In path 10 miles long heavy hail caused severe damage to wheat and \$10,000 damage to buildings; winds caused \$10,000 damage to property.
Vida, Mont.	6	5-5:45 p. m.	1 10		1,000,000	Hail	Damage to wheat and flax over path 60 miles long.
Circle (near), Mont.	6	6:30-7 p. m.	1 12		250,000	Hail and wind	Heavy hail, size of golf balls, caused severe damage to small grains and \$1,000 damage to buildings over path 65 miles long. Some farmers reported 100 percent losses to grains. \$3,000 damage to property by wind.
Terry (near), Mont.	6	8:30-9 p. m.	1 4		400,000	Hail	Severe damage to small grains and corn and some damage to buildings over path 35 miles long.
Glendive (near), Mont.	6	8:30-8:55 p. m.	1 2-6		175,000	do.	Heavy hail, some size of hens' eggs, caused considerable damage to small grains over path 9 miles long; about 52 head of cattle severely injured.
Mildred, Mont.	6	9-9:30 p. m.				do.	Hailstones, size of marbles, caused considerable damage to grains.
Westmore, Mont.	6	9:30-10 p. m.				do.	Considerable damage to wheat.
Capitol, Mont.	6	11 p. m.				do.	Considerable damage to small grains.
Glasgow (near), Mont.	6	P. m.	1 20		140,000	do.	Damage to small grains over path 50 miles long.
Crown King (near), Ariz.	6	Evening.	1 4		27,000	Electrical, rain, and hail	Rocks and debris on roads northeast of Crown King. Flooded canyons cut main road up to 50 feet wide and 200 feet deep. Population isolated for 3 days. Lightning struck Golden Crown Mining Corporation's main structure. Major damage to mining tunnels and pumps by flooding. Corrals and barns washed out in vicinity of Cleator. Canyons in vicinity of major downpour washed out to bedrock. Observer estimated 8 inches of rain in storm center in about 1 1/4 hours. Telephone and power lines out for several days.
Richey, Mont.	6		1 5		100,000	Hail and wind	Severe hail damage to wheat over path 100 miles long. High wind caused \$10,000 damage to crops and \$15,000 damage to property.
Opheim (near), Mont.	6		1 22			Hail	Considerable damage to small grains and gardens over path 40 miles long.
Lodge Grass, Mont.	7	4:55-5:30 p. m.	1 1		200,000	do.	Heavy hail up to 1 inch in diameter damaged wheat and sugarbeets; some damage to gardens and windowpanes.
Miles City (near), Mont.	7		1 5		100,000	do.	Considerable damage to small grains and alfalfa over path 30 miles long.
Opheim (near), Mont.	7		1 1/4-6			do.	Severe damage to small grains. Hailstones up to size of golf balls. Some farmers suffered 100 percent loss of crops.
Bingham and Bonneville Counties (parts of), Oreg.	8	2-2:30 p. m.	1 1-4		100,000	do.	Storm travelled northeastward. Severe damage to wheat, potatoes, and hay in path about 20 miles long near Idaho Falls. Hailstones up to 1 inch in diameter.
Capulin, N. Mex.	8	2:30 p. m.			2,000	do.	Most damage to farm crops.
Malta (near), Mont.	8	2:30-3 p. m.	1 3-4		90,000	do.	Hailstones, up to 3/4 inch in diameter, caused severe damage to small grains over path 12 miles long.
Capitol, Mont.	8	3 p. m.	1 1			do.	Considerable to severe damage to small grains. 100 percent loss of unharvested grains in some areas.
Tahoka, Lynn County, Tex.	8	4:30 p. m.	1 2		110,000	Wind and hail	Most damage to cotton; some to roofs and car tops. Hail damage to crops, \$90,000; to other property, \$9,000. Wind damage, \$11,000.
Spur, Tex.	8	6:30 p. m.			5,000	do.	Hail damage, \$4,000; wind damage, \$1,000, mostly to cotton.
Hysham, Mont.	8	6-6:20 p. m.	1 1 1/4			do.	Severe damage to small grains, corn, and sugar beets.
Baker (near), Mont.	8	7-7:10 p. m.	1 1 1/4			Hail	Some damage to peas, small grains, and soft-leaf crops.
Oakley (3 miles southeast), Idaho.	9	2 p. m.	1 1		35,000	Hail	Struck Lann Ranch, travelling from southwest over path about 3 miles long. "Extra heavy hail, marble size" caused severe damage to hay, peas, grain, corn, and potatoes. "The ground was completely covered with hail and had not melted in the hay until noon next day."
Calvert County, Md.	9	4:30 p. m.				do.	Farmers reported their tobacco crops a complete loss; amounted to \$3,000 at one farm.

## SEVERE LOCAL STORMS FOR AUGUST 1948—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Pyote, Ward County, Tex...	9	8:20 p. m. ....	200	-----	-----	Wind.....	Approximately 90 aircraft damaged. 1 hangar and an unoccupied building damaged.
Rappahannock County, Va.	9	8:30-9 p. m. ....	1	-----	\$29,000	Hail and wind.....	Apples, peaches, and corn destroyed.
Faribault and Freeborn Counties, Minn.	9	P. m. ....	1	-----	100,000	Thundersqualls.....	A number of barns, outbuildings, silos, and windmills demolished; houses, buildings, and automobiles damaged; trees uprooted or branches broken off; crops in storage and growing crops damaged; signs, poles, and wires down; plate glass windows blown in.
Martin and Faribault Counties, Minn.	9	P. m. ....	16	-----	215,000	Hail.....	Damage in places to growing crops and considerable damage to real property.
Minnesota (extreme south and southeast).	9	P. m. ....	-----	-----	25,000	Electrical.....	Several places struck by lightning. At Mankato 3 fires started and considerable damage to power lines. In St. Paul, large chimney was struck and 1 person injured.
Minnesota (extreme south-central).	9-10	P. m.-a. m. ....	-----	-----	300,000	Rain.....	Excessively heavy rains that accompanied severe thunderstorms flooded fields, lowlands, highways, roads, streets, and basements. Several small bridges and railroad tracks washed out; much soil erosion; trains delayed by landslides; some turkeys drowned.
Stanton (10 miles south), Stanton County, Nebr.	9-10	11:30 p. m.-2:30 a. m. ....	18	-----	-----	Hail and wind.....	Corn damaged 7 to 56 percent. Much of damage from accompanying gale winds. Path 15 miles long.
Schuyler (north of), Colfax County, Nebr.	10	1:30 a. m. ....	12	-----	-----	Wind.....	Corn stripped by wind and some buildings blown down.
North Topeka, Kans.	10	8:58-9:15 a. m. ....	900	-----	10,000	do.....	Several buildings suffered minor damage. Power and telephone lines blown down. Much damage to shade trees. One tree fell across a parked automobile.
Douglas, Ariz.	10	2:30 p. m. ....	-----	-----	4,000	Rain and hail.....	Main part of town flooded. Water poured into hotels, banks, and offices. Ditches and streets washed badly. Some hail damage to roofs.
New London (1 mile north and 3 miles west), Wis.	10	3:30 p. m. ....	1	-----	10,100	Hail and electrical.....	Hailstones up to 2 inches in diameter. \$10,000 loss to crops and \$100 to buildings.
Dodgeville (near), Wis.	10	Afternoon.....	-----	-----	500	do.....	Hail damage to crops
Winchester, Omro, and Poygan Townships, Winnebago County, Wis.	10	4:30-6 p. m. ....	15	-----	5,000	do.....	Crop damage, \$3,000; 2 wooden silos destroyed, \$2,000.
Bozeman (near), Mont.	10	5-5:20 p. m. ....	12-3	-----	25,000	Hail.....	Considerable damage over path 10 miles long. Small grains damaged.
Wayne County, Nebr.	10	5:30-8:30 p. m. ....	16	-----	35,000	Hail and electrical.....	Damage of about \$15,000 to corn and other crops, and \$20,000 to buildings, including barn burned from lightning. Path 6 miles long.
Baltimore County, Md.	10	P. m. ....	-----	-----	-----	Hail.....	Hailstones, some 3 inches in diameter, fell in areas around Fullerton, Perry Hall, and Chase, tearing leaves from trees and damaging crops.
Genoa, Platte County, Nebr.	10	-----	15	-----	-----	Wind.....	Corn stripped, and threshing machines, hay rakes, and a few barns, and windmills damaged.
Parkersburg, W. Va.	11	5-6:20 a. m. ....	-----	-----	-----	Electrical.....	2 residences struck by lightning; damage by fire in one and to radio and wiring in other.
Scribner and vicinity, Dodge County, Nebr.	11	12:30 p. m. ....	12	-----	75,000	Hail and wind.....	Damage to crops; corn stripped. Path 6 miles long.
Culbertson, Mont.	11	3:30-3:40 p. m. ....	880	-----	5,000	Hail.....	Damage to wheat over path 3 miles long.
Redwillow and Hitchcock Counties, Nebr.	11	4-4:30 p. m. ....	11	-----	65,000	do.....	Corn and alfalfa damaged, about \$30,000, and other property, about \$25,500, in Hitchcock County over a path 6 miles long.
Bozeman (near), Mont.	11	5:30-6 p. m. ....	11 1/4	-----	20,000	do.....	Considerable damage to small grains over path 14 miles long.
Ness County, Kans.	11	8-9 p. m. ....	12-18	-----	175,000	Wind and hail.....	Path from 3 miles north of Brownell to south of Bazine. Wind damage about \$75,000, mostly to barns and sheds in or near Brownell. Hail damage to crops, \$100,000.
Chambersburg, Pa.	11	Afternoon.....	-----	-----	8,000	Electrical.....	A barn, nearby buildings, feed, and implements destroyed by lightning.
Allen County, Ohio	11	-----	-----	-----	-----	Hail.....	Some damage to crops, especially corn.
Wetsetka, Okfuskee County, Okla.	11	-----	-----	1	-----	Electrical.....	Killed girl, knocking another unconscious.
Ponca City, Kay County, and Vinita, Craig County, Okla.	12	12:30-1:45 a. m. ....	-----	-----	5,000	Electrical and wind.....	Lightning struck 2 houses; burned one to ground, caused \$500 damage to another. Power and telephone lines struck, disrupting service.
Sumner County, Kans.	12	12:30 a. m. ....	112	-----	20,000	Wind.....	From northwestern part of county to Anson; high winds at Wellington. Farm buildings wrecked or damaged.
St. Louis County, Mo.	12	12:10 p. m. ....	880	-----	11,200	Wind and hail.....	Storm from west struck Sylvan Beach Airport; 1 hangar blown down and another damaged; 7 airplanes damaged.
Farmville, Va.	12	9-9:30 p. m. ....	1 1/4	-----	30,000	do.....	Tobacco, corn, and some hay destroyed 4 miles northeast of Farmville and in southern Cumberland and northeastern Prince Edward Counties. Damage heaviest to early tobacco.
Hagerstown, Md.	12	P. m. ....	-----	1	-----	Thunderstorm.....	Lightning fire destroyed a home, causing death of girl from burns.
Valentine, Nebr.	12	Night.....	-----	-----	-----	Hail and wind.....	Considerable damage to corn in surrounding area; some windows broken.
Beaver Dam, Va.	12	-----	-----	-----	8,000	do.....	Tobacco destroyed. Chimneys and outbuildings blown down.
Frederick County, Va.	12	-----	-----	-----	30,000	Hail.....	In Timber Ridge area apple and peach orchards badly damaged.
Estherville, Emmet County, Iowa.	13	4-4:25 a. m. ....	-----	-----	-----	do.....	A number of corn fields west and north of Estherville stripped. Some high winds. Damage small.
Opheim, Mont.	13	3-3:20 p. m. ....	18	-----	200,000	do.....	Considerable damage to wheat and barley over path 8 miles long.
Seneca and Imlay, Pennington County, S. Dak.	13	3:30-4 p. m. ....	-----	-----	-----	Rain and hail.....	Washed out railroad track; damaged buildings and grain.
Brewster, Florence, and Penrose, Colo.	13	4:05-4:45 p. m. ....	14	-----	450,000	Hail.....	Hailstones, size of marbles, damaged truck crops, such as cabbage, celery, alfalfa, berries, and apples, in path 15 miles long. Some damage to roofs and windows.
Dalhart, Hartley County, Tex.	13	6:30 p. m. ....	12	-----	15,000	do.....	Hailstones about size of golf balls. Most of damage to buildings.
South Coventry and vicinity, Conn.	13	Late afternoon.....	-----	-----	15,000	Electrical.....	3 large barns and 4 other buildings damaged by lightning.
Franklin, Hampshire and Hampden Counties, Mass.	13	Mid-afternoon.....	-----	-----	-----	Electrical and hail.....	Serious tobacco plant damage by large hailstones in Connecticut Valley. 25 houses struck by lightning.
Cranston and Pawtuxet Valley, R. I.	13	Late afternoon.....	-----	-----	2,000	Electrical.....	Local damage to electrical control equipment. Lightning struck a church and 2 homes.
Glendive (near), Mont.	13	-----	-----	-----	-----	Hail.....	Severe damage to small grains; from 25 to 100 percent loss.
Malta (near), Mont.	13	-----	11	-----	3,500	do.....	Considerable damage to a small acreage of wheat.
Miles City (near), Mont.	13	-----	12 1/2	-----	50,000	do.....	Considerable damage to small grains and alfalfa over path 16 miles long.
Rapid City, S. Dak.	13	-----	-----	-----	100,000	Wind and rain.....	Severe thunderstorm damaged hangar at Army airport. Light and power lines blown down. Maximum wind of 60 m. p. h. broke previous records for August.
Antelope County (western portion), Nebr.	14	2 p. m. ....	13	-----	-----	Hail.....	Hailstones, 1 1/4 to 2 1/4 inches in diameter, killed small pigs, poultry, stripped corn stalks, and matted down meadows. Heavy damage to tops of autos and roofs. Path 22 miles long. Damage severe.
Plymouth, Sioux, and Cherokee Counties, Iowa.	14	Late afternoon and evening.	-----	-----	-----	do.....	About 800 Plymouth County farms damaged; northeast corner of Meadow Township bore the brunt of storm. Extensive damage in southeastern Sioux County and near Marcus in Cherokee County. Hailstones small, damaging soybeans more severely than corn; losses varied from negligible to 70 percent.
Vicksburg, Miss.	15	9 p. m. ....	-----	-----	-----	Thunderstorm.....	Severe thunderstorm developed on a squall line, resulting in winds up to 60 m. p. h. in gusts. Damage confined to trees, awnings, signs, power and communications lines. Tent collapsed upon people at religious meeting. Damage considerable.

## SEVERE LOCAL STORMS FOR AUGUST 1948—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Jacksonville, Fla.	15	Late afternoon		1	\$20,000	Electrical and wind	1 person killed by coming in contact with fallen high tension wire. Wind in gusts up to 50 m. p. h. at Naval Air Station. Damage to city electrical equipment \$15,000, mostly due to lightning. 11 fires caused by lightning, including loss of residence valued at \$5,500.
Pine Bluff, Ark.	15	Afternoon			10,000	Rain and wind	1.4 inches of rain in 35 minutes caused general overflow of curbs, wall and roof of auto company caved in, damaging several cars; Winds damaged some roofs and disrupted several power lines.
Glasgow (near), Mont.	16	12-12:20 a. m.	12-4		1,000,000	Hail and wind	Hail damaged small grains over path 60 miles long. Some wind damage to buildings.
Vineland (6 miles northwest of Oshkosh), Wis.	16	4:45-5:30 a. m.			15,000	Electrical and wind	2 barns, a granary, corn crib, tool house, hog shed, 17 tons of hay, and 2,000 bushels of oats destroyed by lightning fire.
Waukesha (near), Wis.	16	1:30-2 p. m.	12		10,000	Hail	Hailstones, $\frac{1}{4}$ to 2 inches in diameter, damaged crops; about 800 acres damaged.
Port Lavaca, Calhoun County, Tex.	16	4 p. m.	14		25,500	Wind	Damage to 3 windmills. Greatest damage, \$25,000, to cotton.
Baylor (near), Mont.	16	4:45-5 p. m.			700,000	Hail	Damage to small grains; 100 percent losses in some areas. 1 to 4 inches of hail found on level ground.
Sharon (near), Wis.	16	4:45-6 p. m.	110		151,000	Electrical, hail, and wind	Path 10 miles long; only major hail loss in rural section of Sharon in its history. Hailstones as large as baseballs reported. Barns and smaller buildings moved off foundations, silos blown down, roofs removed or perforated, hundreds of windows broken, poultry killed. Telephone and electrical lines damaged. Estimated loss to buildings, equipment, etc., \$50,000; to poultry, \$1,000; to crops, mainly corn, \$100,000.
Elkader and Garber, Clayton County, Iowa.	16	Afternoon	12			Hail	Sudden hailstorm, with stones as large as hens' eggs, caused variable destruction from near Elkader southward to Garber.
Harvard, McHenry County, Ill.	16	5 p. m.	13			Hail and wind	Several cornfields damaged by hailstones, averaging $\frac{3}{4}$ inch in diameter.
Burlington and Walworth, Wis.	16	5:50-6:10 p. m.	12		21,100	Electrical, hail, and wind	Heavy hail, $\frac{1}{2}$ to 2 inches in diameter. Many trees uprooted and broken; electric and telephone wires torn down. Small church steeple at Burlington crashed through slate roof of church. Many basements flooded. Estimated loss to crops, mainly corn, \$15,100; to buildings, equipment, etc., \$6,000.
Culbertson, Mont.	16	6:30-6:45 p. m.	12		400,000	Hail and wind	Heavy hail caused severe damage to wheat and buildings over path 85 miles long. Winds caused \$15,000 damage to crops and property.
Lustre (near), Mont.	16	7 p. m.			200,000	do.	Heavy hail caused severe damage to grains. "Unable to tell what grain had been growing in some fields."
Sargent and Richland Counties, N. Dak.	16	Late evening	110		25,000	Wind	Small buildings damaged; crop damage estimated at \$10,000, included in total. Major damage in Lidgerwood and vicinity.
Wheaton and vicinity, Minn.	17	12:10 a. m.	120		150,000	Thundersqualls and hail	A number of buildings demolished, moved from foundations, or otherwise damaged; hundreds of trees uprooted or branches broken off; communication and power lines disrupted; farm machinery damaged; haystacks scattered. Grain in shocks and growing crops damaged by light to heavy hail.
Minneapolis-St. Paul and vicinity, Minn.	17	2:40 a. m.			2,000	Electrical	A number of places struck by lightning; one injury.
Manawa, Wis.	17	Early a. m.			1,000	Hail	Damage to crops, mostly corn.
Whiteside County, Ill.	17	4 p. m.	13-6		2,000,000	do.	Damage to crops, orchards, gardens, poultry, and farm buildings. Many cornfields and gardens total loss. Many windows broken and greenhouses severely damaged. Several hundred chickens killed by hail; some hailstones reported to be as large as baseballs.
Iowa (extreme eastern portion).	17	Late afternoon				Hail and wind	Storm struck a number of local communities in Clinton, Muscatine, Scott, and Jackson Counties, then moved into western Illinois. Strong wind between Muscatine and Davenport toppled numerous utility poles. Except in a few small local areas, crop damage estimated to be light.
Northern Warren County and Southern Mercer County, Ill.	17	5:45 p. m.	11	0	1,500,000	Tornado and hail	Very heavy damage to corn and soybeans by hail. Several cars damaged and many windows broken. 10 farm homes practically ruined by tornado; a few minor injuries.
Scales Mound, Jo Daviess County, Ill.	17	5:50 p. m.	11		3,000	Hail	Cornfields damaged.
Ogle County, Ill.	17	5:50 p. m.	115		66,000	Hail and wind	Heavy damage to corn and soybeans by hailstones, averaging 1 inch in diameter and some as large as 3 inches in diameter. A few buildings unroofed and some poultry loss.
Lee County (northern and eastern portions), Ill.	17	6 p. m.	15		1,000,000	Hail	Corn and soybeans seriously damaged by hailstones, averaging size of walnuts, with some stones reported as large as baseballs. Many roofs damaged; many windows broken, and automobiles dented.
Olsburg to Belvue, Pottawatomie County, Kans.	17	6:30 p. m.	12		250,000	Wind and hail	Barns and other farm buildings blown down. Hail damaged crops extensively.
LaSalle County, Ill.	17	6:30 p. m.	13 $\frac{1}{2}$		1,000,000	Hail	Crops, mainly corn and soybeans, damaged by hailstones, ranging up to 2 $\frac{1}{2}$ inches in diameter. Many windows shattered.
Lanark, Carroll County, Ill.	17	6:45 p. m.	13		15,000	do.	Considerable damage to corn, hay, and gardens by hailstones size of walnuts. A greenhouse heavily damaged.
Outagamie County, Wis.	17	7:50-8:50 p. m.			5,600	Electrical and wind	5 places struck by lightning within 5-minute period. Wind more severe in Hortonville-New London area. Power poles felled and 2 cattle killed 6 miles southwest of Darboy, valued at \$600. Property damage in Appleton estimated at \$4,000. Damage to utility lines in Outagamie County, \$1,000.
Grundy County, Ill.	17	8:30 p. m.	13		47,500	Hail	Greatest loss to corn and soybeans. Some roofs and windows damaged. A large number of birds killed.
Owaneco, Christian County, Ill.	17	9 p. m.	13			do.	Considerable damage to crops, mainly corn.
Pittsylvania County, Va.	19	11 a. m.			25,000	Hail and wind	Principal damage to tobacco near Rondo, Weal, and Shockoe communities.
Lunenburg, Hanover, and Mathews Counties, Va.	19	Late afternoon				Hail	Tobacco and corn damaged heavily in some areas.
Stark County, Ohio	19	Late afternoon				Rain and electrical	In Canton 2.28 inches of rain in 2 hours flooded streets, and public utility lines were damaged by lightning. Corn damaged by washing and flooding, especially along creeks.
Glasgow (near), Mont.	19	6-6:17 p. m.	12-6		1,000,000	Hail	Damage to small grains over path 50 miles long.
Aiken, S. C.	19	Night			3,000	Electrical, wind, rain, and hail	Grain filled stable destroyed by lightning fire. Storm accompanied by high winds, heavy rain, and hail. Plate glass windows broken in several stores, traffic blocked, and power interrupted.
Leonardtown, Md.	19	P. m.		2		Wind and thunderstorm	High winds capsized a boat with 5 fisherman; 2 drowned.
Miles City (near), Mont.	19		13		50,000	Hail	Damage to small grains over path 8 miles long.
Tampa, Fla.	19			0	0	Waterspout	
Charleston, S. C.	21	10:30 a. m.		1		Electrical	1 person killed by lightning.
Baltimore, Md.	21	P. m.				Rain	Parts of eastern Baltimore heavily flooded. Sidewalks and roads washed away; some cellars flooded as deep as 6 feet.
Libertytown and vicinity, Md.	22	3:39 p. m.	11			Hail	Hailstones, some 2 $\frac{1}{2}$ inches in diameter, caused considerable damage in path 5 miles long in and south of Libertytown. Reported that hail collected to a depth of 6 inches. Garden crops, about 65,000 bushels of apples and about 25 acres of tomatoes and truck crops a complete loss. Buildings with paper or shingle roofs completely ruined.

## SEVERE LOCAL STORMS FOR AUGUST 1948—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Lancaster (east of), Pa.	22					Hail	Approximately 500 acres of tobacco damaged.
Baylor (near), Mont.	23	4-6 p. m.	13		\$150,000	do.	Damage to small grains, potatoes, and gardens over path 25 miles long.
Big Sandy, Mont.	23	5:05-5:15 p. m.	12			do.	Considerable damage to small grains over path 15 miles long.
Havre, Mont.	23	5:35-5:42 p. m.		1		Wind	Strong gust of wind jarred house being moved, and one of rollers crushed boy.
Bruce (5 miles northeast), Rusk County, Wis.	25	4 p. m.	11		1,000	Electrical, hail and wind.	A small girl lifted and buffeted about by the storm but not injured.
Wheaton (near), Barry County, Mo.	25			1		Electrical	Man killed by lightning while plowing in field.
Atoka (15 miles north), Coal County, Okla.	25			1		do.	Man killed by lightning in field.
Goodwell, Texas County, Okla.	26	8:00-9:30 p. m.			20,000	Electrical and hail	Lightning destroyed large storage building at Panhandle A&M College; damage estimated at \$15,000. 2 persons injured. Small area of irrigated gardens between Goodwell and Guymon completely destroyed by hail.
Plymouth and Cherokee Counties, Iowa.	27	Evening				Rain	At Remsen in northeast Plymouth County 5.70 inches of rain fell within a few hours. At Cherokee, 3 inches fell within 2 hours and a total of 4.15 inches reported for storm. Rivers and creeks went out of banks; many basements flooded in Storm Lake, Remsen, and Cherokee. Crops damaged in low areas.
Hawley and vicinity, Pa.	28		11			Electrical and wind	Winds blew down many trees; damaged electric and telephone lines. Lightning caused several fires; killed 1 cow. Boy slightly injured when tree limb fell on car.
Bruce (10 miles south) and Ladysmith, Rusk County, Wis.	28	6:30 to 10 p. m.	112	1	6,000	Electrical, hail and wind.	1 man killed by lightning while working on farm and 1 injured; 6 cows knocked down. Lightning struck power lines and several buildings.
Pelican Lake, Oneida County, Wis.	28		11	1		Wind	Man drowned in Pelican Lake when boat swamped.
Marion (near), Wis.	28				4,000	Electrical	Barn struck by lightning and burned.
Faribault, Olmsted, and Winona Counties, Minn.	29	A. m.—p. m.	11		44,000	Hail	Hail, accompanying a severe thunderstorm, damaged growing crops and some real property.
Critz, Va.	29	1-1:30 p. m.	11		8,650	Hail, wind, and electrical	Tobacco destroyed. 1 horse killed by lightning.
Olmsted and Winona Counties, Minn.	29	2:40-7 p. m.			79,000	Thundersqualls (possibly small tornado).	Several Winona County fair buildings wrecked and others damaged; 100-foot church steeple toppled; a number of barns, out-buildings, garages, silos, and windmills demolished; many barns, houses, buildings, and farm machinery damaged; poles, wires, and signboards down; many trees uprooted; hay and straw stacks scattered; motorcycle blow off road and driver seriously injured; about 25 head of livestock perished; growing crops damaged. Path of storm about 7 miles long and in southeasterly direction. (See following report).
Fountain City, Wis.	29	3:30-5:30 p. m.	14	37		Electrical, hail, and wind.	Thunderstorm continued from Minnesota. Hailstones about 1/4 to 2 inches in diameter. During the storm a Northwestern Airlines airplane crashed on the bank of the Mississippi River northwest of Winona with loss of 37 lives.
Vernon and Crawford Counties, Wis.	29	4-8:30 p. m.	15-10		250,500	do.	About 1,000 farmers in western Vernon and northern Crawford Counties suffered heaviest crop losses in history, especially to tobacco and corn; townships of Bergen, Hamburg, Genoa, Wheatland, and Harmony, and parts of Clinton, Webster, Jefferson, Liberty, Sterling, and Franklin had heaviest hail losses of record. Hailstones at Genoa as large as small oranges. Hides of livestock slashed by hail; chickens killed; many roofs punctured; automobile bodies, especially tops, dented. Losses in Vernon County: tobacco and corn, \$50,000; barns burned with hay and grain, \$20,000; poultry \$500; buildings and machinery, \$40,000. Losses in Crawford County, \$140,000.
Adams County, Ohio	29	4-4:30 p. m.				Rain and electrical	Barn struck by lightning. Roads north and west of Pebbles flooded.
Syracuse and vicinity, N. Y.	29	4:30 p. m.				Electrical and wind	Houses struck by lightning; wires torn from telephone and electric poles; persons marooned in cars, due to live wires as well as branches and fallen trees blocking streets and highways. Wind velocities up to 50 m. p. h.
Shawneetown, Gallatin County, Ill.	29	5 p. m.			35,000	Electrical	Lightning fire destroyed 3 oil tanks and 4,000 barrels of oil. A few miles away a large barn filled with harvested crops also destroyed by lightning.
La Crosse County, Wis.	29	5:50-6:30 p. m.	110		110,000	Electrical, hail, and wind.	Heavy damage to corn and tobacco in area, extending from Genoa to Viola; loss estimated at \$100,000. Automobile tops damaged by hail; loss estimated at \$10,000.
Winona County, Minn.	29	6 p. m.			1,000	Electrical	A number of places struck by lightning; 2 boys injured in barn; church in Lewiston damaged by fire after steeple was struck.
Hanover County, Va.	29	7-8 p. m.			5,000	Hail	Tobacco and late corn damaged in scattered areas.
Scott County, Va.	29	7-8:30 p. m.	13		9,000	Hail and wind	Much tobacco and corn destroyed at Nickelsville and in Big Moccasin Valley.
Chilhowie (4 miles southeast), Va.	29	7:30-8 p. m.	11		20,000	Hail	Apples, corn, and burley tobacco damaged.
Farmville (6 miles east), Va.	29	8-8:20 p. m.	880		10,200	Hail, wind, and electrical	Tobacco seriously damaged. 2 buildings destroyed by lightning fire. Several buildings demolished by wind.
Carroll County, Ill.	29	8:40 p. m.	110		500,000	Hail and wind	Corn, soybeans, and watermelons suffered heavy damage. Several barns and small buildings wrecked by high winds, a large number of windows broken, and many buildings unroofed. 4 planes at the Savanna airport damaged. Power and telephone services badly hit. Heavy property loss at Mt. Carroll, Savanna, Thomson, Chadwick, and Lanark.
Whiteside County, Ill.	29	9:30 p. m.			500,000	do.	Most of damage by winds up to 85 m. p. h. Corn flattened; some buildings wrecked and many others lost their roofs. A hangar at Sterling Airport wrecked and 3 planes badly damaged. Power and telephone services crippled. Heaviest damage in Sterling area, but Morrison also hit.
Wytheville (near), Va.	29	P. m.			12,000	do.	In Mt. Pleasant and Fairview Sections. Most damage to corn and apples; some windows broken and slight damage to roofs.
Iowa (extreme eastern portion).	29-30	Night			20,000	Wind and electrical	Hardest hit were cities along the Mississippi River in the quad-city area, and Clinton. Line of thunderstorms reached their maximum intensity as they struck eastern Iowa. At Clinton Airport wind estimated at 75 m. p. h. in gusts; at Moline Airport wind measured at 80 m. p. h. with gusts to 80 m. p. h. Storm damage general in Clinton and Davenport, with broken trees, toppled power and telephone lines, and minor property damage. Lightning struck depot in Bettendorf, resulting in \$5,000 fire.
Columbia, S. C.	30	2:30-4:30 p. m.			50,000	Thunderstorm	A rather severe thunderstorm, with moderate hail and high winds. 1 person slightly injured.
Belleville (near), W. Va.	30	5-8 p. m.				Electrical	Barn struck by lightning, causing total loss, valuable horse killed by stroke; man standing next to horse seriously injured when horse fell upon him.
Chambersburg, Pa.	30				2,500	Wind	Wind damaged 2 crop-spraying planes at airport; blew out section of hangar wall.
Gallipolis (near), Gallia County, Ohio.	30					Electrical	2 barns destroyed by lightning fire.
Forrest City and vicinity, Ark.	30	Evening			25,000	Wind	Widespread damage to roofs, power lines, windows, and trees. Major portion of damage occurred when roof from a stock auction barn settled on store.

1 Miles instead of yards.

## LATE STORM REPORTS FOR JULY 1948

[The table hereunder contains such data as were received concerning severe local storms that occurred during the month. A revised list will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Roundup (near), Mont.	1	4-4:30 p. m.	1 1/4			Hail	Hailstones, size of peas, caused considerable damage to wheat.
Stanford, Mont.	1	6-6:30 p. m.	890		\$2,000	do	Damage to wheat and barley.
Ryegate, Mont.	1		440-880			do	Up to 90 percent damage to 500 acres of wheat; some hay fields damaged.
Busby (near), Mont.	2	3-3:05 p. m.	1 5		10,000	do	Hailstones, approximately size of walnuts, damaged wheat and alfalfa in path 10 miles long.
Plevna, Mont.	3	7-7:15 p. m.	1 4		80,000	do	Severe damage to wheat, barley, and flax in a path 14 miles long. Paint on dwellings also damaged.
Wibaux, Mont.	3	6 p. m.	1 3			do	Hailstones, size of hens' eggs, caused severe damage to small grains in path about 6 miles long. Storm from northwest circled to northeast and then returned in a westerly direction.
Busby, Mont.	3	4:30 p. m.	1 5			do	Hailstones, some as large as hens' eggs, caused severe damage to small grains over path 12 miles long. Hundreds of windows broken. Gardens, roofs, and shrubbery damaged.
Emory (near), Mont.	3	4-4:30 p. m.	1 2			do	Considerable damage to wheat; \$50 property damage.
Richey, Mont.	6					do	Moderate hail caused some damage to wheat and barley.
Poplar (near), Mont.	6	4-4:30 p. m.	1 2			do	30 percent loss to approximately 2,000 acres of wheat.
Richey, Mont.	7	6:30-7 p. m.			18,000	do	Considerable damage to wheat; \$500 property loss.
Malta (near), Mont.	7	P. m.	1 1/2-2		50,000	do	Damage to small grains over path 15 miles long.
Turner, Mont.	7	4:30-4:50 p. m.	1 2-3		25,000	do	Damage to small grains over path about 6 miles long.
McCone County, Mont.	7 and 14					do	300 acres of wheat completely lost. Most farms in Township 16, Range 49 reported from 10 to 90 percent loss.
Baker (near), Mont.	9	4-4:10 p. m.	1 1			do	Moderate hail, size of marbles, caused considerable damage to flax, alfalfa, and range grass. 50 percent loss to 200 acres of flax.
Talbotton (near), Ga.	9	Mid-afternoon	200-300	0	4,000	Tornado	Storm moved down valley section of Talbot County near Talbotton. 1 home heavily damaged; another slightly damaged; moderate to heavy damages to 10 tenant houses.
Circle (near), Mont.	10	9-11 p. m.				Hail	10 to 20 percent loss to some wheat fields.
Miles City, Mont.	10		1 5		60,000	do	Hailstones, up to 1 inch in diameter, damaged small grains severely over path 18 miles long. \$3,000 loss to buildings.
Miles City (near), Mont.	10				80,000	do	Hailstones, up to 1 inch in diameter, damaged crops and buildings severely over path 12 miles long. \$2,000 loss to buildings.
Martinsdale (near), Mont.	10	6-7 p. m.	176	0	8,000	Tornado, electrical, rain, and hail.	1 house totally destroyed, 14 head of cattle killed by lightning. Hail washed by rain "looked like a winter snowbank." Hailstones up to 1 inch in diameter.
Utica (near), Mont.	10	5-6 p. m.				Hail	Heavy hail, with stones as large as walnuts, caused severe damage to small grains.
Columbus, Mont.	10	4-4:10 p. m.	1 1/2			do	Considerable damage to small grains by light hail over path 3 miles long.
Shawmut (near), Mont.	10	7:30-8:15 p. m.	1 3			Hail	Heavy hail, some as large as hens' eggs, caused severe damage to small grains and buildings.
Geraldine, Mont.	11		1 3		50,000	do	Hailstones, up to 1 inch in diameter, damaged wheat and barley over a path 20 miles long.
Lustre, Mont.	11	10:15 p. m.			15,000	Hail and wind	Hail damaged small grains. Wind caused \$300 damage to a barn.
Malta, Mont.	11	6-6:45 p. m.				Hail and rain	Considerable hail damage to small grains in some areas.
Bozeman (near), Mont.	11	4:30-5 p. m.	1 2-3		7,500	Hail	Damage to peas and wheat in small areas.
Cleveland (near), Mont.	11	4:30-5:15 p. m.	1 1/2		4,500	do	Damage to wheat in small area.
Dillon, Mont.	11	2:30-2:40 p. m.	1 2		5,000	do	Damage to peas and winter wheat over path 10 miles long.
Terry (near), Mont.	11-12	5-5:25 p. m. 11-11:25 p. m.	1 2		155,000	Hail and wind	Storms on 2 days over approximately the same area 25 to 50 miles long. Wind caused damage of \$5,000 to buildings and \$50,000 to small grains.
Glendive, Mont.	12		1 5-6		70,000	Hail	Hailstones, some as large as billiard balls, damaged small grains and flax.
Stanford, Mont.	13	3-3:20 a. m.	1 1		60,000	do	Damage to spring and winter wheat.
Powder River County, Mont.	13		1 4		80,000	do	Hailstones, up to 1 inch in diameter, damaged small grains and tame hay over path 20 miles long.
Glendive (near), Mont.	13	7:30-7:50 p. m.			15,000	do	Damage to small grains.
Forsyth, Mont.	13	5-6 p. m.	1 2		70,000	Wind and hail	\$20,000 wind damage and \$50,000 hail damage to small grains.
Shelby (near), Mont.	14	5:30-7 p. m.	880			Hail	Severe damage to mustard over path 2 miles long.
Vay (near), Idaho	18	Evening				Hail and rain	Garden crops and grain badly damaged or completely destroyed in Vay and Woodfairie districts. 6-inch layer of hail reported next morning. Heavy rain caused 6-inch rivulets on hillsides.
Helena, Mont.	19	11:18-11:23 a. m.	1 10		500,000	Hail	Damage to buildings and small grains. Most of damage to windows and roofs of buildings and to greenhouses.
Whitehall to Three Forks, Mont.	19	1-1:30 p. m.	1 3-6	1	50,000	Tornado, electrical, and hail.	Severe hail damage to small grains and buildings over entire area of southern Jefferson County and into Gallatin County as far as Three Forks, where tornado and severe electrical storm developed. Hailstones 1 1/2 inches in diameter, and one measured 5 1/2 inches in circumference. A woman near Three Forks struck by lightning and killed while fishing.
Columbus, Mont.	19	P. m.	1 2		7,500	Hail	Damage to winter wheat and tame hay over path 25 miles long.
Clydepark, Mont.	19	4-4:15 p. m.				do	Heavy hail up to 1 inch in diameter caused severe damage to wheat and buildings.
Lenep to Harlowton, Mont.	19	3-3:30 p. m.	1 3		150,000	do	Complete destruction to small grains and severe damage to hay over path 40 miles long. Hay and grain lodged.
Butte (near), Mont.	19	12:55-1:10 p. m.	1 5		110,000	do	Heavy hail, some as large as golf balls, damaged buildings and gardens over path 10 miles long.
Monarch (near), Mont.	19					do	Heavy hail, some as large as turkeys' eggs, caused severe damage to grains and buildings.
Stanford, Mont.	19	2:15-3 p. m.	1 4		400,000	Hail	Heavy hail, some as large as hens' eggs, caused severe damage to small grains over path 18 miles long. \$75,000 damage to buildings alone at Stanford. Almost every west window in every building in town was broken.
Powell and Deer Lodge Counties, Mont.	19	10:30-10:55 a. m.	1 8-9		150,000	do	Damage to 500 acres of potatoes and 1,000 acres of wheat.
Ennis, Mont.	19	2:30-2:40 p. m.	1 3			do	Considerable damage to small grains and hay.

<sup>1</sup> Miles instead of yards.

## LATE STORM REPORTS FOR JULY 1948—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Southeastern Rock and Southwestern Nobles Counties, Minn.	20	3:30 p. m.	1 2½		\$22,500	Hail and rain	Severe thunderstorm moved northeastward, with light to heavy hail, sometimes as large as golf balls, in path 10 miles long. Damage to growing crops, mostly small grains. Additional damage by heavy rain.
Plevna, Mont.	20	6:30-6:45 p. m.	1 1-3			Hail	Damage to peas over path 8 miles long.
Loma (near), Mont.	20	P. m.				Rain	Flash flood washed out railroad bridge.
Ekalaka, Mont.	20	Late p. m.	1 8-10			Hail	Considerable damage to grains and buildings over path 30 to 40 miles long.
Martinsdale, Mont.	21	P. m.				Hail and rain	Hail damaged hay, grain, and potatoes; on the following morning hailstones still in ditches. 0.68 inches of rain reported in 20 minutes.
White Sulphur Springs, Mont.	21	6:30-6:50 p. m.	1 10		20,000	Hail	Damage to small grains and hay.
Great Falls, Mont.	23					Wind and electrical	63 m. p. h. maximum winds damaged trees and roofs. 1 home struck by lightning, tearing hole in roof and another hole in front wall. Some electrical equipment also damaged.
Dawson, Ga.	24	1:30 p. m.	25-50	0	5,500	Tornado	Storm moved north-northeastward and was reported to have traveled no more than about 900 feet. Damage only in industrial area. A cotton oil mill unroofed; top of water tank twisted and left dangling. Several roofs damaged, including the railroad depot and some smaller structures.
Columbus (near), Mont.	24		880		5,000	Hail	Damage to wheat over path 8 miles long.
Culbertson, Mont.	24	3-3:20 p. m.	1,320		18,000	Hail and wind	Heavy hail damaged wheat over path 8 miles long. Storm apparently continued into North Dakota. \$2,000 wind damage to wheat.
Hill County, Mont.	27	5-7:30 p. m.			525,000	do	Heavy hail in small area caused 50 to 75 percent loss to small grains. Wind destruction estimated at \$500,000 to small grains.
Chester (near), Mont.	27	4:30 p. m.	1 2			do	A little hail damage to wheat. Wind caused 25 percent loss of wheat over path 10 miles long.
Chester (near), Mont.	28		1 1			do	A little hail damage over path 5 miles long. Wind caused 25 percent loss to small grains.
Bozeman (near), Mont.	29	2:30-2:45 p. m.	1 1		2,500	Hail	Damage to wheat over path about 5 miles long.
Powder River County, Mont.	29		1 4½		90,000	do	Heavy hail, ¼ to 1 inch in diameter, damaged small grains, hay, and rangeland over path 50 miles long. Some buildings damaged.
Bozeman (near), Mont.	31	4-4:20 p. m.	1 2		75,000	do	Damage to small grains in small area.
Phillipsburg, Mont.	31	7-7:30 p. m.	1 10		30,000	Hail and wind	Moderate hail and wind damaged small grains, hay and range grass.
Near Gale Creek and Helmville, Mont.	31	7-7:10 p. m.	800		5,000	Hail	Damage to small grains over path 15 miles long.
Dillon, Mont.	31	12-12:30 p. m.	1 5		5,000	do	Hailstones, up to 1 inch in diameter, damaged peas and buildings.

¹Miles instead of yards.